

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number
WO 2005/003351 A1

(51) International Patent Classification⁷: C12N 15/12,
C07K 14/47, A61K 38/17

(74) Agents: HUGHES, E. John, L. et al.; Davies Collison
Cave, 1 Nicholson Street, Melbourne, Victoria 3000 (AU).

(21) International Application Number:
PCT/AU2004/000919

(22) International Filing Date: 8 July 2004 (08.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/485,790 8 July 2003 (08.07.2003) US

(71) Applicant (for all designated States except US): CHEM-
GENEX PHARMACEUTICALS LIMITED [AU/AU];
C/- Edmondson Turner & Co., 439 Bay Street, Brighton,
Victoria 3186 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): COLLIER, Greg,
Royce [AU/AU]; 22 Kestrel Place, Ocean Grove, Victoria
3226 (AU). WALDER, Ken, Russell [AU/AU]; 54 Lake
Avenue, Ocean Grove, Victoria 3226 (AU). SEGAL,
David, S. [AU/AU]; 101 Maddeley Street, Ocean Grove,
Victoria 3226 (AU).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: DIFFERENTIAL EXPRESSION OF NUCLEIC ACID MOLECULES

(57) Abstract: The present invention relates generally to nucleic acid molecules expressed at least in the hypothalamus, liver, mesenteric adipose tissue, or red gastrocnemius muscle conveniently identified using differential display techniques under differing physiological conditions. The nucleic acid molecules are associated with or act as markers for conditions of *inter alia* a healthy state, myopathy, obesity, anorexia, weight maintenance, diabetes, disorders associated with mitochondrial dysfunction, genetic disorders and/or metabolic energy levels. More particularly, the present invention is directed to a nucleic acid molecule and/or its expression product for use in therapeutic and diagnostic protocols for conditions such as *inter alia* a myopathy, obesity, anorexia, weight maintenance, diabetes, disorders associated with mitochondrial dysfunction, genetic disorders and/or metabolic energy levels. The subject nucleic acid molecule and expression product and their derivatives, homologs, analogs and mimetics are proposed to be useful, therefore, as therapeutic and diagnostic agents for *inter alia* a myopathy, obesity, anorexia, weight maintenance, diabetes, disorders associated with mitochondrial dysfunction, genetic disorders and/or metabolic energy levels or as targets for the design and/or identification of modulators of their activity and/or function.

BEST AVAILABLE COPY

WO 2005/003351 A1